2021

Status of biofertilizer research, commercialization, and practical applications: A global perspective

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Elsevier Inc.

https://doi.org/10.1016/B978-0-12-821667-5.00017-8

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DOI: https://doi.org/10.1016/B978-0-12-821667-5.00017-8

Abstract

Most contemporary agricultural practices involve the use of synthetic fertilizers which have been linked to numerous deleterious consequences such as eutrophication of water bodies and emission of greenhouse gases. Biofertilizers offer viable and environmentally friendly alternatives. The positive effects of plant growth-promoting rhizobacteria have extensively been demonstrated several agronomically important crops under both controlled and field conditions. Despite the large volume of literature documenting the potential of these microbial inoculants as biofertilizers, their practical application has largely been hampered by several factors. This chapter presents the current knowledge of biofertilizer research, commercialization, and practical applications from the global perspective. The constraints facing their research and global application are also articulated. Finally, some prospects regarding their future research, commercialization and practical application for sustainable cropping systems are critically elucidated. It is anticipated that this will enable the full evaluation of the potential prospects of biofertilizers for sustainable agriculture and ecosystems globally.

Keywords

Biofertilizers; Sustainable agriculture; Microbial inoculants; Plant growth-promoting rhizobacteria